

Serial No. 10/604,444

PATENT
ART UNIT 3641
Serial No: 10/604,444

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	MONKS, Steven J.	Examiner:	CLEMENT, Michelle Renee
Serial No:	10/604,444	Art Unit:	3641
Filed:	July 22, 2003		
Title:	ELECTRONIC GRIP FRAME FOR A PAINTBALL MARKER		
Docket No:	P034 P00888-US		

AMENDMENT AND
REQUEST FOR CONTINUED EXAMINATION

Mail Stop: AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicant is in receipt of the office action of August 23, 2005. A request for an extension of three (3) months to respond to the office action is enclosed herein with the appropriate fee. Also, a Request for Continued Examination (RCE) is also enclosed with the appropriate fee. Responsive to the office action dated August 23, 2005, please amend the above-identified patent application as follows:

Amendments to the Claims

1. (currently amended) An electronic grip frame for a paintball marker, comprising:

a frame;

a trigger, having a front side and a rear side, movably connected to the frame; the trigger being ~~movable between a resting position and a firing position~~ rotatable about a pivot axis; the trigger including a prong portion emanating therefrom, which is movable with the trigger, and a finger contact side and a rear side opposite thereof;

a prong connected to an emanating rearwardly away from the rear side of the trigger;

~~an optical sensor mounted onto the frame proximal to the prong portion, the optical sensor includes a light emitter and a light detector to detect light from the light emitter; the optical sensor being capable of sensing a break in passage of light between the light emitter and the light detector; the prong being movable between a position not between the light emitter and the light detector and a position between the light emitter and the light detector;~~

a light emitter mounted to the frame and being capable of emitting light;

a light detector mounted to the frame and positioned in parallel spaced apart relationship to the light emitter defining a elongated passage therebetween having a longitudinal centerline; the light detector being capable of detecting light emitted from the light emitter transversely through the elongated passage;

the prong being movable along the longitudinal centerline between a depressed firing position between the light emitter and the light detector and a released non-firing position not between the light emitter and the light detector; the light emitter and light detector forming an optical sensor; the prong being movable along the longitudinal centerline upon rotation of the trigger about the pivot axis; and

an electrical output connected to the optical sensor; the electrical output being capable of generating a first electrical signal indicative of the trigger at the resting released non-firing

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position where light from the light emitter is directly detected by the light detector and a second electrical signal indicative of the trigger at the depressed firing position where the presence of the prong in the elongated passage prevents light from the light emitter from directly being detected by the light detector.

2-4. (canceled)

5. (original) The electronic grip frame of Claim 1, further comprising:

a first adjustable stop connected to the trigger to limit positioning of the trigger relative to the frame when the trigger is in the resting position.

6. (original) The electronic grip frame of Claim 1, further comprising:

a second adjustable stop connected to the trigger to limit positioning of the trigger relative to the frame when the trigger is in the firing position.

7. (original) The electronic grip frame of Claim 1, further comprising:

means for biasing the trigger into the resting position.

8. (original) The electronic grip frame of Claim 7, wherein the means for biasing is a ferrous set screw mounted in the trigger and a magnet attached to the frame at a location aligned with the ferrous set screw.

9. (original) The electronic grip frame of Claim 1, wherein the frame and trigger are made of metal.

10-23. (canceled)

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24. (currently amended) The electronic grip frame of Claim 42 1, further comprising:

a microprocessor electrically connected to the electrical output of the non-contact sensor;

a sear solenoid electrically connected to the microprocessor;

a hammer mechanically connected to the sear solenoid;

a pin valve mechanically connected to the hammer; and

a source of gas fluidly connected to the pin valve.

Claims 25-33 (canceled).

REMARKS

This amendment is responsive to the office action dated August 23, 2005. Applicant has canceled claims 3, 10, 11 and 12-23. Claims 1, 5-9 and 24 remain pending in this application.

I. Rejection of Claims 1, 3 and 7 under Section 103(a) - Austin and Lee

Claims 1, 3 and 7 stand rejected under Section 102(a) as being unpatentable over Austin (USPN 4757629) and Lee (USPN 5133030).

The office action states that Austin '629 teaches a grip frame for a marker that has a trigger that is movable between a resting position and a firing position where the electrical output thereof is indicative of the position of the trigger. The office action states that Austin does not teach interrupting a light beam. Lee is cited for the general teaching of an optical light-interrupting switch. It is further stated that it would be obvious to combine Austin and Lee to arrive at applicant's claimed invention.

Austin, in fact, generally teaches a gun firing mechanism that has an electrical trigger that has an output that indicates the status of the trigger, namely, whether it is in a resting condition or in a firing position. It may be theoretically possible for Austin to employ the optical switch of Lee. Even assuming that Austin and Lee are combinable under Section 103, application submits that such a combined device still does not meet the limitations of claim 1, as amended.

The present invention, as in the claims as amended, requires much more than the general concept of a light-interrupting trigger that reports the status of the trigger. Claim 1, in particular, requires a trigger that rotates about a pivot axis where a prong on the rear face thereof passes through an elongated passage defined by a light emitter and a light detector in spaced apart parallel relationship to one another. The light emitter and light detector are positioned so that when the trigger rotates about the pivot point, the prong passes through that passage to break the light beam. The prong is positioned on the rear face of the trigger and at

an appropriate angle so that it smoothly passes through the elongated passage. See Fig. 4a. It should be noted that the limitations of claim 3, relating to prong location, have been incorporated into base claim 1. Accordingly, claim 3 has been canceled.

The trigger and prong configuration of Fig. 4a is not arbitrary in nature. It is specifically well-suited for use in a mobile paintball marker unlike the optical switch of Lee, which is designed for fixed communications systems. Applicant's optical switch arrangement is only generally similar to Lee's arrangement in that they both break a path of light to indicate a condition of a switch or trigger. However, applicant's trigger specifically requires *direct* detection of light that is being transmitted unlike the *indirect* detection taught by Lee. In other words, in Lee, both the emitter and detector are on the same side of the device thereby requiring a delicate concave reflector 40 to reflect light back to the emitter as well as precise alignment of the emitter and detector and reflector mirror. An absorption pad 76' is further required to absorb light that is blocked by light blocking member 80 to ensure that secondarily reflected light does not make it back to the detector which would give a false indication of trigger position.

As can be understood, the optical switch of Lee is completely unsuitable for the environment of a paintball marker. The emitter and detector on the same side of the device and mirror must be carefully calibrated to ensure accuracy. Applicant's optical switch is specifically geared for rugged operation, such as in a paintball marker. The emitter and detector in applicant's invention are disposed on *opposite* sides to each other which obviates the need for a delicate mirror which would surely break or become out of alignment if used in a paintball marker. Furthermore, applicant's invention requires that the trigger be pivot mounted so that the prong attached thereto smoothly enters the passage defined between the emitter and detector. This new and unique construction is not shown in the prior art or suggested therefrom. The combination of Austin and Lee are devoid of this structure. There is no teaching or suggestion

in either one of these references to employ the pivot trigger and rearwardly projecting prong structure that passes between an emitter and detector.

In view of the foregoing, applicant submits that claims 1, as amended, is patentability distinct over the combination of Austin and Lee.

Since claim 7 depends from now allowable claim 1, applicant submits that claim 7 is now also allowable over the cited prior art.

II. Rejection of Claim 9 under Section 103(a) - Austin and Lee

Claim 9 stands rejected over the combination of Austin and Lee. Since claim 9 depends from now allowable claim 1, application submits that claim 9 is now also allowable over the cited prior art.

III. Rejection of Claims 5, 6 and 11 under Section 103(a) - Austin, Lee and Kidd

Claims 5 and 6 stand rejected over the combination of Austin, Lee and Kidd. Since claims 5 and 6 depends from now allowable claim 1, application submits that claims 5 and 6 are now also allowable over the cited prior art. Claim 11 has now been canceled, and the limitations therein relating to pivoting movement of the trigger, have now been incorporated into base claim 1.

IV. Rejection of Claims 7 and 8 under Section 103(a) - Austin, Lee and Surawski et al.

Claims 7 and 8 stand rejected over the combination of Austin, Lee and Surawski et al. Since claims 7 and 8 depends from now allowable claim 1, application submits that claims 7 and 8 are now also allowable over the cited prior art.

V. Rejection of Claims 11-16 and 23 under Section 102(b) - Stevens

Claims 11-16 and 23 have been canceled. As a result, the rejection relating to these claims are now moot.

VI. Rejection of Claim 12 under Section 102(b) - Thanasack

Claim 12 has been canceled. As a result, the rejection relating to this claim is now moot. For the same reasons above in connection with Austin and Lee, Thanasack fails to teach applicant's invention, as amended, in the claims. Thanasack fails to teach a trigger configuration that employs a pivoting trigger with a rearwardly projecting prong structure that passes between an emitter and detector to prevent direct detection of light.

VII. Rejection of Claim 12, 17-21, 23 and 24 under Section 103(a) - Surawaski, Stevens and Thanasack

Claims 12, 17-21, 23 and 24 stand rejected over the combination of Surawaski, Stevens and Thanasack. Claims 12, 17-21 and 23 have been canceled thereby rendering moot the rejection of these claims. Claim 24 has been amended to depend directly from claim 1. Since claim 24 depends from now allowable claim 1, application submits that claim 24 is now also allowable over the cited prior art.

VIII. Conclusion

Accordingly, claims 1, 5-9 and 24 are now patentably distinct over the cited prior art. Applicant respectfully requests that the rejections be withdrawn and that the claimed subject matter is now in condition for allowance. Corresponding action is respectfully solicited.

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The PTO is authorized to charge any additional fees incurred as a result of the filing hereof or credit any overpayment to our account #02-0900.

Respectfully submitted,

/david r. josephs/

David R. Josephs
Reg. No. 34632

BARLOW, JOSEPHS & HOLMES, Ltd.
101 Dyer Street, 5th Floor
Providence, RI 02903
(401) 273-4446 (tel)
(401) 273-4447 (fax)
drj@barjos.com